





# Worm Poster Grading Rubric 2/5/02

The objective of this project was to illustrate, label, and explain the anatomy of the earthworm.

## Title (2 points)

Points Awarded: 2

- 0 points: no title stated
- 1 point: unclear title stated
- 2 points: title clearly stated

## Illustration (6 points)

Points Awarded: 6

- 0 points: did not illustrate the internal anatomy of the earthworm
- 2 points: incomplete or unclear illustration of the anatomy of the earthworm *Very Neat*
- 4 points: generally clear and complete illustration with a minor error or omission *Easy to See!*
- 6 points: clear and complete illustration of the anatomy of the earthworm

## Labels (6 points)

Points Awarded: 6

- 0 points: no labels of anatomy indicated
- 2 points: labels of anatomy are incomplete, disorganized, and/or hard to read
- 4 points: labels of anatomy are generally clear and complete with a minor error or omission
- 6 points: labels of anatomy are clear and complete

## Explanation (6 points)

Points Awarded: 6

- 0 points: no explanations of anatomy indicated
- 2 points: explanations of anatomy are incomplete, unclear, and/or disorganized
- 4 points: explanations of anatomy are generally correct and clearly written with a minor error
- 6 points: explanations of anatomy are accurate, well organized, and clearly written

## Format (5 points)

Points Awarded: 5

- Gave yourself credit
- Colored
- Neat
- Organized
- Extra Effort
- 0 points: no
- 1 point: yes

Overall Points Awarded: 25 out of 25 points

Grade: A+

Excellent work! It was a good idea to color-code the anatomy and labels to make it easy to read.!!  
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## Are Earthworms the Solution?

Erica  
2/5/02

The Student Council has been given a small grant to start a recycling program in the cafeteria. They realized that a tremendous amount of food is thrown away each day. The Student Council heard that vermicomposting might be a possible solution to the problem. They do not have much information on this topic; therefore they are asking our class to research the topic because we are already studying earthworms. As a class, your mission today is to determine whether or not vermicomposting is beneficial for our school. What do you think would be positive, negative, or interesting about this type of recycling program? Organize your information below.

+ (good)	- (Bad)	I (interesting)
<ul style="list-style-type: none"> <li>• Can recycle unused garbage</li> <li>• Saves money</li> <li>• Good for environment</li> <li>• Enhance garden compost</li> <li>• Castings full of protein</li> <li>• Worms multiply</li> <li>• Make air ways for air to get to the roots.</li> <li>• non-wax paper and cardboard can be composted</li> </ul>	<ul style="list-style-type: none"> <li>• some things cannot be composted</li> <li>• kids might make mistakes and throw bad foods in the pile that can't be composted</li> <li>• some people don't want garbage in their backyard <small>what does that mean for us?</small></li> <li>• they will have to watch the worms</li> <li>• it will be cold because it is a pile of garbage &amp; why?</li> </ul>	<ul style="list-style-type: none"> <li>• That worms can actually do this.</li> <li>• Worms can multiply</li> <li>• enough worms to move 40 tons of soil per acre every year</li> <li>• Red wigglers are the best</li> <li>• Vermes means worms</li> </ul>

I know that you were taking the notes for the class on the board, but can you elaborate or add to the ideas on this paper?

Name: \_\_\_\_\_ Student #1 student #1

## Worm Experiment 1 ✓

Question: Do worms prefer damp or dry?

Hypothesis: I predict the worm(s) will choose damp ✓

### Experiment Directions:

1. Cover one half of your worm tray with a damp paper towel.
2. Cover the other half with a dry paper towel.
3. Place your worm in the center of the paper towel: one end on the damp, one end on the dry.
4. Watch your worm for 3 minutes. Record where the worm is located each minute, damp or dry. Repeat 2 more times.

### Observations:

Trial Number	Minute 1	Minute 2	Minute 3
Trial 1	Damp	Damp	Damp
Trial 2	Damp	Damp	Damp
Trial 3	Damp	Damp	Damp

 ✓

Results: How many times did the worm choose: damp 9 dry 0 ✓

Conclusion: This worm prefers: damp ✓ dry \_\_\_\_\_ ✓

Why do you think this happened?

This happened because worms live in damp soil and their skin needs to stay wet/damp since they breathe through their skin. Their skin is what helps them move around. What will happen if it dries?



Name: \_\_\_\_\_ Student #1 \_\_\_\_\_ Student #1 \_\_\_\_\_

## Worm Experiment 2 ✓

Question: Do worms prefer light or dark? ✓

Hypothesis: I predict worms prefer dark. ✓

Materials: <sup>How many?</sup> Worms, stopwatch, black piece of paper, container (tin) moist paper towel ✓

### Experiment Directions:

- ① Put a damp paper towel in the tin.
- ② Cover half the tin with the black piece of paper.
- ③ Put the worms in the center: one end in dark and one in light. <sup>Good!</sup>
- ④ Watch worm for 3 minutes. Record and repeat 2 more times. <sup>Don't forget: Record where the worm is located after each minute.</sup>

### Observations:

Trial Number	Minute 1	Minute 2	Minute 3
Trial 1	dark	light	dark
Trial 2	dark	dark	dark ✓
Trial 3	dark	dark	dark

Results: 8 dark 1 light ✓

Conclusion: My worm seemed to like dark better. ✓

Why do you think this happened? Nice! ✓

This happened because worms live in the dark (soil) and they might think the light is the sun which would suffocate them, because worms breathe through their skin and their skin is what helps them move too.

### **Worm Experiment 3**

**Question:** Do worms like a warm or cool environment?

**Hypothesis:** I predict my worm will like a cool environment.

**Materials:** 2 worms, timer, tin, cold ice pack, hot towel, and 1 moist paper towel.

#### **Experiment Directions:**

- 1.)** Place a damp paper towel in tin.
- 2.)** Put the hot towel on half of the tin (underside) and put the ice pack on the other half.
- 3.)** Nicely place your worms in the middle so one half of the worms are on the warm side and one half is on the other side.
- 4.)** Watch your worms for 3 minutes. Record the side the worm is on each minute. Repeat 2 more times.

#### **Observations:**

<b>Trial Number</b>	<b>Minute 1</b>	<b>Minute 2</b>	<b>Minute 3</b>
<b>Trial 1</b>	<b>Cool</b>	<b>Cool</b>	<b>Cool</b>
<b>Trial 2</b>	<b>Cool</b>	<b>Cool</b>	<b>Cool</b>
<b>Trial 3</b>	<b>Cool</b>	<b>Cool</b>	<b>Cool</b>

**Results:** 9 cool    0 warm    0 room temperature

**Conclusion:** My results are the worms choose cool 9 times over warm and room temperature. Yet the class results

were 8 warm, 52 cool, and 21 between temperatures. I think the experiment was accurate and the bin should be placed in a cool place maybe under something. There should be a lid on top of the bin.

The first experiment we did was to see if the worms liked damp or dry. The worm chose damp every time in my group because worms breathe through their skin and if they dry out they could not breathe or move since their skin is what helps them move too. It was accurate because the worms could feel their choices and pick which one they preferred because inside the bin it needs to be damp.

The second experiment was to see if the worms liked light or dark. The worms chose dark more times than they chose light because worms live in dark soil and they might think the light is the sun, which would suffocate them. The worms had equal chances to choose either dark or light. From this experiment, the bin needs to be drilled all around including the lid. *What do you mean?*

The third experiment we did was to see if the worms preferred a cool or warm environment. The worms chose cool because the soil they live in is cool and the worms would not want to dry up and suffocate from the hot dry sun. Again, the worms had equal chances and chose a cool environment.